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THE RESPONSIBILITY AND FUTURE OF ORGANIZED MEDICINE*

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The medical profession is vitally concerned in the social plans for post war reconstruction, especially as they pertain to our own field of endeavor. Unless we actively participate we may well see a plan similar to the Beveridge of England put into effect, wherein the physician is the servant of the state and the practice of medicine becomes just another chapter in history.

The first concern of organized medicine is to give to the patient the best possible care. We have endeavored to maintain a high standard of public health. We have diligently worked for the advancement of scientific medicine and have far outstripped those countries in which medicine is controlled by government.

It is also the duty of organized medicine to lead the way to any improvement in medical service that is needed. Only by doing this can we prevent undesirable and inefficient social changes from being brought about under the pretense of a medical emergency. Only in this way can we keep the federalization of medicine from becoming an actual fact under the guise of national defense.

We must expand our efforts to educate the public. As Dr. William J. Mayo said "How can laymen be expected to accept (wise) legislation for the regulation of medical practice when most of the information they receive about medical matters comes to them from the advertisements of patent medicine vendors and voluble charlatans?" They might accept such legislation for medical regulation, it is true; but unless they are informed they will accept it in ignorance and with lasting regret.

We must keep our legislators informed about our beliefs and about our wishes. We must give whole hearted continuous support to the National Physicians' Committee, whose members are urging us to indoctrinate our congressional representatives against all ill-considered schemes which must lead to unfortunate innovations. Every physician should acquaint himself with the splendid work this committee is doing and render both financial and moral support in this crusade to save the medical profession and protect the public from regimented medicine.

During the past year, before a United States Senate Committee, a bill to grant federal funds to help states run the secondary schools was under discussion. The bill contained a provision for complete physical examinations of one-third of all high school students at a fixed fee of one dollar and twenty-five cents. One Senator objected to this war time federal help because of the likelihood of it being continued in time of peace. He also took the stand that if one-third of these students were to be examined, why not all of them, why not all grammar school children as well and why not the families of all of these groups. He saw quite clearly how an apparently well meant war time measure might easily lead to complete state medicine.

What then is the future of medicine? Will it be socialized medicine? Why should radical changes be made in our present method of practice? We are told that after the war, there will be countless individuals who will have to be provided for, both medically and otherwise, by the state. With a tremendous accumulation of savings and an abundant supply of physicians in the post war period, there is room for argument as to this need, but we are agreed that all persons shall have good medical care.

During the years since the depression, several plans have been put into operation, all

*Presidential Address, delivered before the Medical Society of Delaware, Wilmington, October 12, 1943.

of them being an attempt to solve this problem. In some states there are already two forms of prepaid medical care. One is the agricultural worker's health program, financed entirely by the federal government, but with the services rendered entirely by the practicing physicians in their communities. Another plan operating in some states is the physicians service, which makes available, on a voluntary basis, a complete health and hospital service to employed groups in industry. It is thought that some overlapping of these two extremes may be worked out so long as the physicians are permitted to direct and control the standard and quality of medical service.

Here in Delaware, our own Group Hospital Service is now in its ninth year of successful operation. During this time, with the cooperation of Delaware physicians and industry, the Plan has flourished to the extent that it has added periodically to the service rendered its membership. This last summer has seen the successful inauguration of a surgical service, sponsored by the physicians of Delaware. Reception of the new service has been most enthusiastic and the acceptance of coverage by approximately 10,000 people in a space of six months is an encouraging example of the enthusiastic acceptance on the part of the public of a voluntary, physician and hospital sponsored project.

It may interest you to know that the Board of Trustees of Group Hospital Service had more than this initial venture in mind when the Plan was originally contemplated. It is the hope of these able business men, with physician cooperation, that surgery will be only the first step in a program of complete medical and dental service to be provided the citizens of Delaware on a voluntary pre-payment basis. This, with a plan now contemplated to provide for the enrollment of individuals, will make adequate medical and dental service available to the bulk of our State population. For those on marginal income levels, the solution is that recommended by the American Hospital Association in its Bishop Resolution; that the Federal government provide grants-in-aid to the states for care of such low income groups. This, with a plan such as our own, is the rational and happy solution to reaching all Americans with adequate medical and hospital care.

What can we, as an association, do to combat this very definite trend that faces us? Some say it is already too late to do anything, that the government is all set to take over medicine. Many of us do not agree with such a defeatist attitude. We owe more than that to the medical public and to ourselves. We should do everything possible to maintain private medical practice. The great majority of citizens are able to finance their medical needs and they really want to do just that. For the remainder (a group which is not a large percentage of the population), we will work out the best plan, be it prepayment or county or state plan. It could be under the direction and control of physicians. It should permit full free choice of physicians by patients wherever possible. It should have few restrictions thrown up about its operation. It should, finally, not materially change the practice of medicine as we know it.

THE VALUE OF STUDIES OF THE CIRCULATION*

JOHN H. FOULGER, M. D.**

During the last few months, a number of interesting books have appeared on the subject of psychosomatic medicine†. These books are significant because all deal with a type of patient, who fails to conform to, and therefore to whom we cannot apply our standard technics of diagnosis. Such patients are sick and show little pathology. They may die, and the autopsy may give no information. They comprise a large proportion of those who need medical attention, and the strain of war on both military and home fronts is likely to increase their number; therefore, we cannot neglect them. Rather should we give a little thought to the adequacy of present methods used in diagnostic medicine.

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* Read before the Medical Society of Delaware, Wilmington, October 12, 1943.

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† They include Emotion and Bodily Changes, 2nd Ed., Dunbar, Columbia University Press; Psychosomatic Medicine, Weiss and English, W. B. Saunders Company; Nervousness, Indigestion and Pain, Alvarez, Hoeber.

Ethnologists tell us that simplicity is a sign of progress in the development of language. If the same rule holds for all fields of human endeavor, can we conclude that we are progressing in the practice of medicine? Our zeal for so-called "scientific diagnosis" has piled up an ever-growing list of "must" procedures—serological, biochemical and physical laboratory tests. We seem to feel deficient if we neglect to run through the whole gamut of these tests at every opportunity, and in grave error if the results do not appear on each record. But most of us will probably admit that accumulated results of laboratory tests are frequently indigestible and even unintelligible.

This situation is probably due to confusion between the meanings of the terms "scientific" and "technological." The tests themselves and their data are merely technological. It is the proper application of laboratory tests, the logical analysis and use of the data which they give, which is scientific. There is nothing scientific in the mere accumulation of indigestible data.

The patients with whom we are concerned in the field of psychosomatic medicine are the despair of the technological diagnostician They do not suffer from any specific infection or trauma, but rather from the pressure of their environment. We can benefit them only by considering them with their environment. We must, therefore, replace the study of pathology by that of biology. Scott Williamson[1] has defined pathology as "the study of the organism on the defensive, or more correctly, in escape—running away from living so as to insure survival"; and biology, as the study of "the organism actively embracing the environment, that is, in health." We can efficiently study patients who are just across the border from good health only by gaining information on those factors which make for good health.

Two basic systems conserve life in man as in all higher organisms, the respiratory and the circulatory systems. They are not independent, but are closely linked in operation. A child is born alive into this world when, to a circulation acquired from its mother, it adds active respiration. Man dies when both respiration and circulation cease. If one of the two is deficient, artificial means can often restore it if the other is intact. In most cases it is easier to restore a failing respiration than a failing circulation.

Strangely enough, even textbooks of physiology give more time to abnormalities of parts of the circulatory system, the heart and the peripheral blood vessels, than to discussion of the normal circulation as a whole. We have a national heart association interested in the specialty of cardiology. In recent years it has established a section for the study of peripheral circulation. The heart and peripheral blood vessels are only part of the circulatory system. We have, as yet, no society for the study of the circulation as a whole.

Our own interest in this subject came from attempts to devise methods for frequent examination of industrial workers. Our aim was to prevent illness from exposure to chemicals by detecting early departures from usual health which those chemicals might produce. This was only possible when our methods of examination were so simple and brief that they could be used frequently in industry without leading to great loss of working time. After several years of observation and laboratory experiments we formulated a general plan of physiological trends which appear to follow exposure to every chemical which we have studied, and which is involved also in the development of illness from inadequate nutrition or disease. This scheme is shown in Fig. 1.

The diagram is divided into two main regions—the left, the range of efficient preventive medicine; the right, the range of diagnosis and pathology. The central point of the left-hand region is "histo-toxic anoxia," that is the degree of reduction of the oxygen supply to the tissues, which leads to poisoning of those tissues. When this situation arises from any cause, the tissues can go through two definite stages. First, there is an initial irritative stage in which their activities are increased. If the poisoning goes beyond this, they reach a depressed stage, with reduction or actual loss of activity. The individual tissues of the body and the organs of which they form part are not equally susceptible to lack of oxygen. Some respond

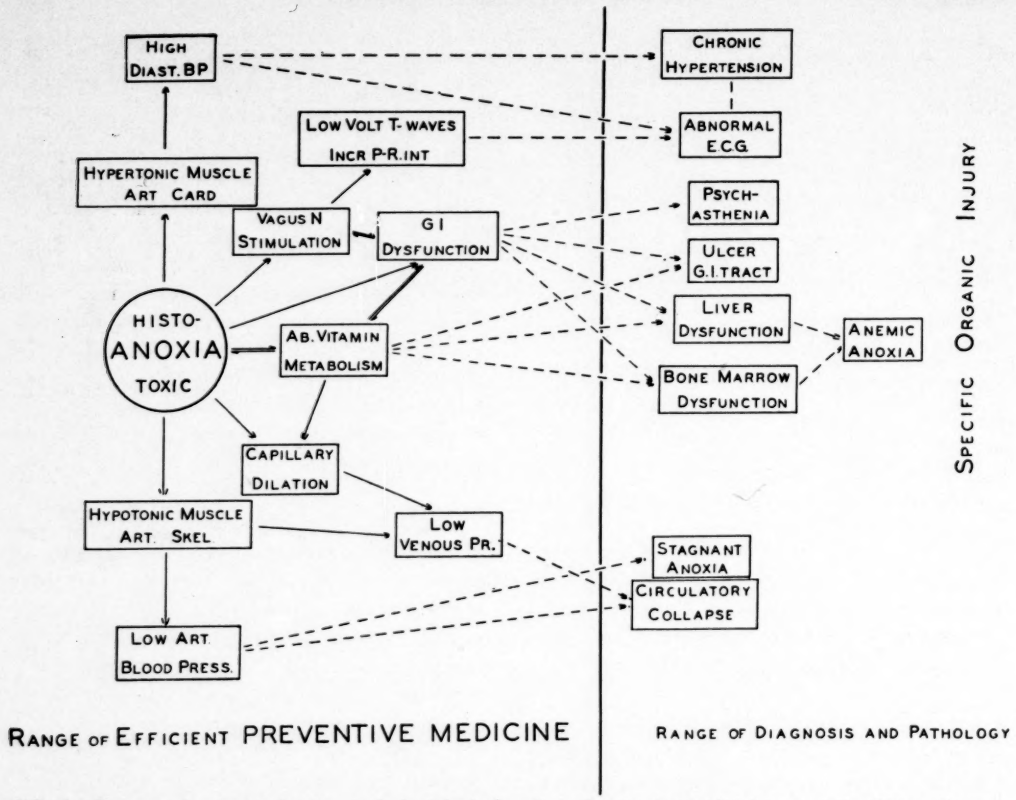

FIG. 1—Diagram showing early stages of physiological action of toxic chemicals, disease, malnutrition, therapy, etc., and relationship of these early stages to pathological states.

more rapidly than others. These are the systems which are highly essential to the conservation of life. Those regions of the brain, which include the hypothalamus and the nerve centers of the medulla oblongata are probably most susceptible to deficiency of oxygen and most easily forced into the irritated stage. A whole train of symptomatology and signs may follow. The symptoms include (and these we find in the early stages of most diseases, as well as of all chemicals which we have studied):

Unusual fatigue or lassitude
Headache
Dizziness
Gastro-enteric disturbances (nausea, loss of appetite, fulness of the stomach, frequent eructations, uneasiness or pain in the epigastrium)
Palpitation.

The signs include:

Definite trends of blood pressure away from usual limits (especially trends of diastolic blood pressure and pulse pressure), and obvious tremors in the extremities. The most important changes occurring are shown in the range of efficient preventive medicine. All of these symptoms and signs are not neeessarily present in each case.

When the degree of anoxia is sufficient to produce the irritative stage, we observe hypertonus of musculature, both skeletal and arterial, leading, among other things, to an increased diastolic blood pressure. If this continues, the diastolic blood pressure may reach ranges which are distinctly abnormal for the posture of the patient. For instance, when measured in the sitting position, diastolic blood pressure may go beyond 90. If this situation is allowed to persist, diastolic blood pressure may become fixed at levels above 90, and later in the history of the patient, the systolic blood pressure also will rise, leading eventually to systolic and diastolic hypertension. If the degree of deprivation of oxygen is such as to produce the de-

pressed stage, there is hyptonous of the musculature, and with it low arterial blood pressure—first, a fall in systolic pressure with a diminution of pulse pressure, and later a drastic fall in diastolic pressure. Finally, systolic, pulse pressure and diastolic pressure may all reach definitely unusual limits, and the patient may collapse.

Even in the extreme condition of collapse, all of these changes are functional. If detected quickly enough, there need be no organic injury, but if they are allowed to continue, as in the case of the high diastolic blood pressure mentioned a few moments ago, there can be definite organic injury, and we pass out of the range of efficient preventive medicine into the range of diagnosis and pathology.

Since we are interested in setting up a system of preventive medicine, it is obvious that the only change shown in this scheme, which, at the present time is subject to easy measurement, is a change in blood pressure. Therefore, our system of examinations is based upon a standard measurement of blood pressure, and the assignment of a score to each record. This score changes under conditions of incipient ill health produced by exposure to chemicals, by malnutrition, by disease or by these and other factors all acting together.

The method of determining the score is shown by Fig. 2. In our routine measurement of blood pressure, we make readings on both arms, and record the diastolic blood pressure at both levels (the change in sound and the disappearance of sound). In our routine calculation of blood pressure scores,

| P | 22 56 | 32 66 | 27 61 | 11 | A | A | | |

we take the arithmetic average of systolic pressures, and the diastolic pressures at the change of sound on the two arms, and from these calculate the average pulse pressure. Our score is derived from pulse pressure and diastolic pressure, and is based upon the probability of deviations of these two values from the means established for a large population. Thus from Fig. 2, if the average of the blood pressure of the two arms is 123/84, which gives a pulse pressure of 39, we find the figure 39 on the vertical axis under P, and 84 on the horizontal axis, and find the point at which the two meet. At this point the reading is 67. The blood pressure score is 0.67.

In normal individuals, the score varies between 1.0 and 0.11. We know by experience that a normal individual will not show a score of 0.1 or less in more than 6% of a very large number of examinations. Therefore, in studying each man's record, we can determine whether or not he shows more abnormal blood pressure scores than he would be expected to show by pure chance in the number of examinations in his record. In addition to the occurrence of definitely abnormal blood pressure scores, we can use a downward trend of the blood pressure score as a sign of development of unusual physiology.

By this scheme we have collected a mass of information on blood pressure, and its analysis has led to very interesting facts.

Continued study of working groups shows that while a majority of workers may show fluctuations of their blood pressure score, a certain proportion, in some cases 20—40% of the group, are frequently giving unusual scores. These men are, in general, more sensitive than their fellows to the action of chemicals, but this increased sensitivity can be traced to situations and habits lying entirely outside of the working environment. We have, then, a group of individuals who appear sickness-prone, analogous to the accident-prone workers about whom we hear so much. Perhaps the two groups are really the same. Certainly, as Figure 3 shows, the hourly trend of occurrence of abnormal blood pressure is almost parallel to the known hourly trend of non-fatal accidents.

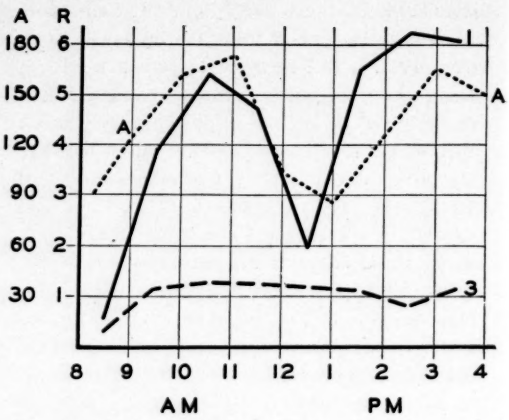

FIG. 3—The hourly trend of
Dotted line A—Non-fatal accidents. (Chemical industries in Pennsylvania, 1940).
Full line 1—Ratio $R = \frac{\text{Observed}}{\text{Expected}}$ number of Crampton test records with values 30 or lower.
Broken line 3—Value of R during 6 months of treatment with 100 mg. ascorbic acid per day.

Since the underlying defect in these people is not produced by their industrial environment, they are your patients rather than the patients of the industrial physician. You will recognize them, and perhaps their families. They include the one who is always nervous and tired, the one who suffers from gastro-intestinal disturbances on the slightest pretext, the patient who comes to you usually with a relatively mild respiratory infection, but who you feel is much more sick than that infection warrants. They include the patients or families who always seem to have "hard luck," are frequently the victims of accidents. Since we can pick them out in industry with a fair degree of success by our studies of circulation, it might well be that the results of our studies will help you in diagnosing and treating their conditions.

In most cases these people are not acutely ill and, therefore, can walk to your office. When you examine them, they will probably sit in a chair beside your desk. Measure the blood pressure sitting. (Might I suggest here that many measurements of blood pressure, casually made, are of little value in this scoring system, and if you wish to apply the tests which I am mentioning now, it is best to become acquainted with the procedure recommended by the Committee for the Stan-

dardization of Blood Pressure Readings of the American Heart Association and the Committee for the Standardization of Blood Pressure Readings of the Cardiac Society of Great Britain and Ireland. The report of this Committee is found in the *Journal of the American Medical Association*, **113**:294, 1939). Having measured the blood pressure, use the chart of Figure 2 to find the blood pressure score. (This chart was published in the *Delaware State Medical Journal* for February 1943) The score might well be normal, for many of the patients feel quite well when "just sitting."

When you have the blood pressure score, normal or abnormal, there is another simple test which you can apply at once. Sooner or later, everyone interested in circulation begins to think of measuring cardiac output. This measurement is not simple. Sometimes it requires temporary hospitalization, which may be costly. Many attempts have been made to find a formula which can be applied to blood pressure and pulse rate readings to give an index of cardiac output without all the fuss and bother of the standard test. One such formula is that of Furst and Soetbeer[2]. It gives an index called the "volume filling index", obtained by dividing pulse pressure by diastolic pressure plus one-third the pulse pressure

$$\left(\frac{\text{Pulse Pressure}}{\text{Diastolic Pressure} + 1/3\ \text{Pulse Pressure}}\right)$$

Figure 4 makes this calculation easy. This, also, was published in the *Delaware State Medical Journal*, March 1943. The two vertical graduated lines are for systolic pressure and diastolic pressure. This sloping line with V at the upper end is for the volume index. Simply take a transparent ruler, or a piece of string, and stretch it across the two vertical lines, from the systolic reading to the diastolic reading, and then on to the sloping line to measure V.

Some have concluded that such a formula has no relationship to cardiac output as measured by standard methods. Recently we have

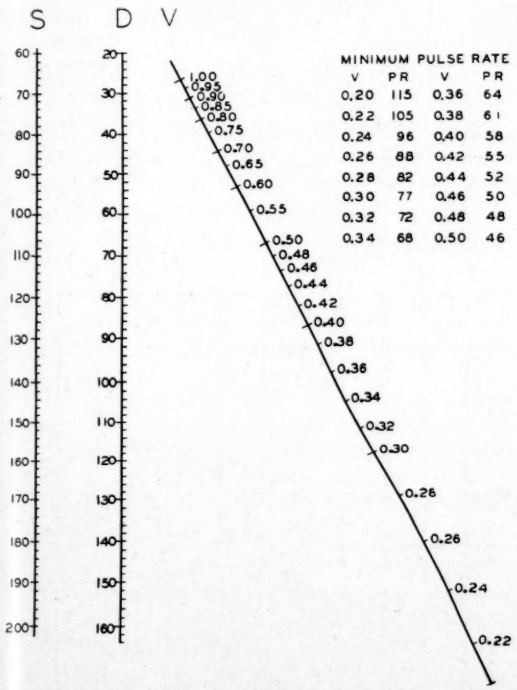

FIG. 4—Chart for calculation of filling volume index (V) from systolic and diastolic pressures. To use this chart, simply stretch a piece of string or lay a transparent ruler across the chart in such a way that it cuts the reading of systolic and diastolic blood pressures and extends to the volume index line. Read off the volume index and look at the table of minimal pulse rates to see whether or not the patient's actual pulse rate is below or above that necessary for proper compensation.

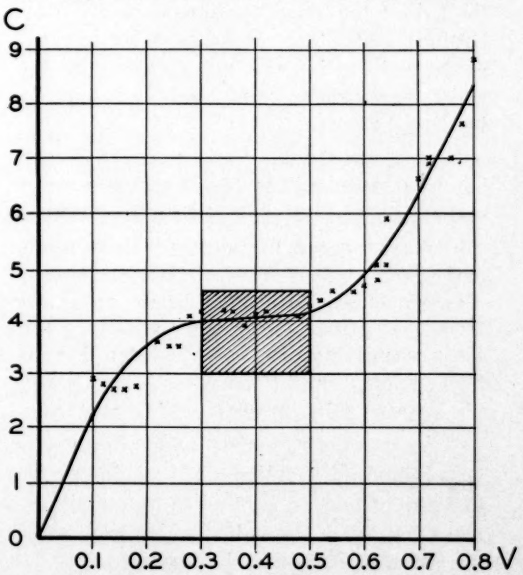

FIG. 5—The trend of average cardiac output, C (liters per minute), with changes in volume filling index, V. The cross-hatched rectangle is bounded by C = 3.0 to 4.6, and V = 0.30 to 0.50, considered as usual (normal) limits. (Data calculated from all blood pressure and cardiac output figures given in Grollman's "Cardiac Output" published by Charles C. Thomas, 1932.).

applied this test to all blood pressure data and cardiac output figures given by Grollman in his standard text "Cardiac Output." Figure 5 shows the result. In this figure, the vertical column, headed C, shows the average cardiac output corresponding to values of V shown on the horizontal axis. The hatched rectangle in the center is bounded above and below by those levels of cardiac output which Grollman considers usual (3.0 to 4.6 liters per minute,), and on left and right by those values of V, which our experience suggests are the usual limits, 0.3 and 0.5. When the value of V moves further and further away from either our lower or our upper limit, the average cardiac output changes rapidly. With V below 0.3, the cardiac output falls. With V above 0.5 it rises. From this figure it can be concluded that with values of V below 0.15 and above 0.55 the cardiac output is definitely beyond normal limits. Thus, from a simple measurement of blood pressure, one can obtain considerable information as to the probable trend of cardiac output. (In making our calculation and constructing our chart, we were, of course, limited by the blood pressure data given by Grollman, and there is considerable internal evidence that this was not obtained by the rigid procedures recommended for use in our industrial examinations.)

However well your patient may feel, and however normal his blood pressure score and cardiac output while sitting, he obviously cannot go through life sitting. Here, often, is the crux of his complaint. He may become dizzy or actually faint when he moves rapidly from one position to the other. He may feel dizzy when lying down, or when standing up. Perhaps his accident-proneness is due to this dizziness or fainting on changing posture.

It is important to measure blood pressure both lying and standing. We would suggest that the patient be allowed to lie quietly for five minutes, at the end of which time measure pulse rate and blood pressure. Then let him rise slowly and stand loosely with heels together and arms hanging at his sides for another five minutes. Again measure blood pressure and pulse rate. Watch the patient while he is standing. If he becomes pale and breaks into a profuse, cold perspiration, stop the test. Perhaps it is best to let him stand against a wall in case he suddenly slumps in a fainting spell. In that case he will probably slide down the wall and not hurt himself.

This test is a form of the Crampton[3] test for "blood ptosis." You might make use of Crampton's arbitrary index, but this index suffers from a serious defect. It considers only changes in systolic pressure and pulse rate, whereas all of our studies point to pulse pressure and diastolic pressure as being the most important factors in any blood pressure measurement.

Although clinical literature mentions trends in blood pressure produced by changes in posture, there is little specific information on this point. From many records of blood pressures taken in the sitting, lying and standing positions, we have been able to study such changes. Figure 6 charts the differences between standing and lying diastolic pressure, pulse pressure and pulse rate which correspond to the values of these factors when lying. Diastolic pressure and pulse rate are always higher standing than lying. The lower the lying diastolic blood pressure, the greater the rise on standing, and this rise can reach a high value. The change in pulse rate is much less pronounced for all levels of

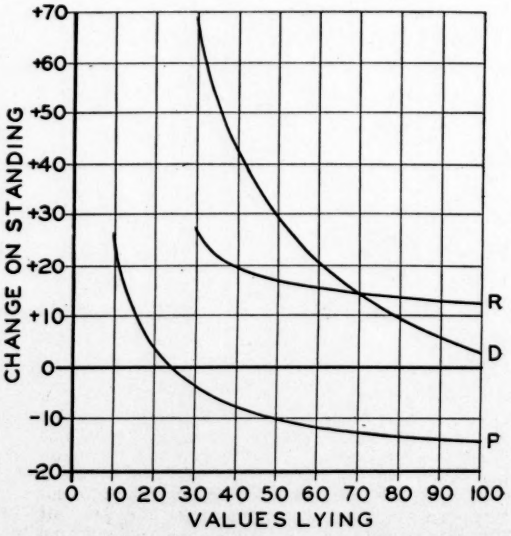

FIG. 6—Differences between standing and lying Diastolic Pressure, Pulse Pressure and Pulse Rate, corresponding to lying values.

lying pulse rate. The pulse pressure is higher when standing than when lying, if the lying value is below about 25 mm. of mercury, but it tends to be ower standling than lying when the pulse pressure is above 25 mm. of mercury in the supine position.

It has been suggested that the product of pulse rate by pulse pressure could be used as a clinical gauge of the minute volume of the heart, and, therefore, as a guide to the manner in which the heart is performing its work in diseased states, but the great variability of both pulse rate and blood pressure when casually observed has discouraged such attempts. However, from Figure 6, we can calculate the average value of the product (Pulse Rate x Pulse Pressure) for the supine position and the corresponding value when standing, and therefore, we can calculate the ratio of these pulse rate products.

When a patient moves from a lying to a standing position, his circulation must be adequate to supply blood to the right heart against gravity. Since most of us do not collapse on standing upright after a night's sleep, though some of us may get dizzy, it seems logical to conclude that the normal circulation can at least approach the same minute volume of blood when standing as when lying. Our data from Figure 6 proves that his is so.

In Figure 7, the curved lines connect all values of pulse rate and pulse pressure, lying, which give the same value of the ratio

$$\frac{\text{P. R. standing}}{\text{P. R. lying}}$$

The value of this ratio is entered at the bend of each curve. The rectangle outlined in the center of the chart is bounded above and below by those limits of lying pulse rate, and left and right by the limits of lying pulse pressure which we consider usual. Within this square it can be seen that the P. R. product standing does not fall below 0.925 times that lying, nor in most cases above 1.10 times that lying. In other words, it keeps itself within 92.5 to 110% of the lying product, which is a definite indication that a normal circulation tends to maintain its minute volume on changing from a lying to a standing position.

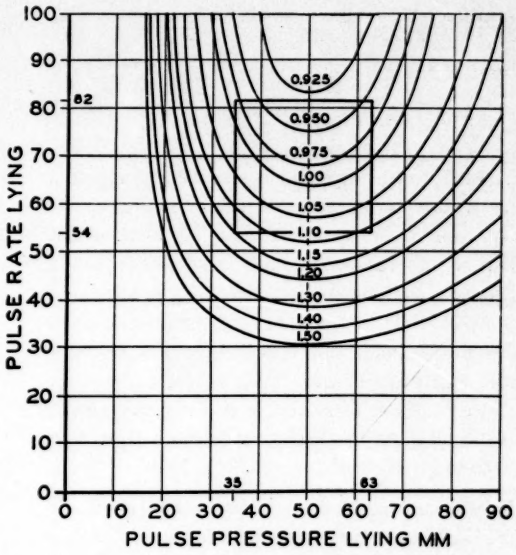

FIG. 7—Values of the ratio $\frac{\text{P.R. standing}}{\text{P.R. lying}}$ corresponding to lying values of P (pulse pressure) and R (pulse rate), and calculated from data of Fig. 6. The figures at the bends of the curves give values of the ratio. The rectangle bounds the usual (normal) limits of lying pulse rate and pulse pressure.

We have now a number of simple weapons with which to judge the circulatory condition of patients who present themselves to us, whether they be in bed when we see them, standing up, or sitting down. Is their blood pressure score normal sitting, lying and standing? Is the index of cardiac output normal sitting, lying and standing? What changes occur in circulation when they pass from the lying position to the standing position? Can their circulatory system adjust itself so that the minute volume of blood entering the heart remains approximately the same when standing as when lying, or is this minute volume deficient so that the circulation to the brain cannot be adequate when standing, or is this minute volume standing over-compensated so that a great strain is placed upon the heart?

The manner in which these changes, particularly the postural changes occur, will to a great extent condition the behavior of the patient. Thus, a true orthostatic hypotension in passing from the supine to the standing position is subjected usually to a very great fall in diastolic pressure, and either a rise or

a fall in pulse pressure. Such cases are reported by Davis and Shumway-Davis[4], and by Korns and Randall[5]. In such cases, of course, the circulation of the blood in the upright position is not adequate to supply sufficient oxygen to the brain and syncope results. The fall to the supine or prone position means immediate elimination of the factor of gravity, and allows restoration of circulation. But should the patient fall in such a cramped position that he cannot lie with his head at least on a level with his legs, restoration of circulation may not take place, and he may die. Of course, there may be various grades of this failure to restore circulation from the frank orthostatic hypotensive to a case bordering on normal.

Figure 7 would indicate that there are many situations in which the minute volume on standing is very much greater than that on lying. In other words, the circulatory system over-compensates. This might be particularly hazardous in a cardiac patient, who is in perfect compensation when lying, but who, on rising may place such a load on the heart that it will fail. A study of the lying blood pressure and of the data of Figure 7 might give some index of this danger. A high pulse rate when lying should be considered as especially significant.

There is a type of case with which we are much concerned, and which we think is more common than is generally supposed. If the lying diastolic pressure and pulse pressure are both low, the pulse pressure may fall slightly on standing, but the diastolic pressure rises greatly. This means a very greatly increased tonus of the blood vessel walls. It leads to insufficient blood flowing into the right side of the heart, and in turn, to sudden death, probably via ventricular fibrillation. On autopsy, if anything is found at all, the left ventricle may be tightly contracted, the right slightly dilated. To this class belong some of the sudden deaths occurring after acute exposure to toxic chemicals, and to this class might belong that recent sad case of the young school girl who, in anticipation of the opening of the next school session, set her alarm clock so that she would be up on time. When the alarm clock woke her, she jumped out of bed and died. Her mother died in a similar manner.

The significance of these studies of circulation may not be apparent even in connection with the type of case which I have mentioned, unless you recall that the most important center of correlation of bodily functions is that very region of the brain, including the medulla and the hypothalamus, which is most sensitive to deprivation of oxygen. In fact, in the literature of psychosomatic medicine, the hypothalamus and the sympathetic nervous system are mentioned more frequently than in any other field of medicine. This part of the brain by its action as a correlating center between the cerebrum and the somatic organs of the body, can condition the response of those organs to psychic changes in the brain and control psychic response to changes in somatic tissues.

Anxiety, malnutrition, disease, acting through the hypothalamus, can cause not only disturbances of digestion, but disturbances of circulation. Disturbances of digestion, acting through the hypothalamus, can cause not only psychic disturbance, but disturbances of circulation.

Conditions of extreme temperature and humidity affecting the peripheral vessels of the skin and causing redistribution of the blood in the body can have a drastic effect upon the general circulation, and even cause sudden death by circulatory failure.

The drugs which we use, the anesthesia we induce before operations, the surgery we perform to remove damaged or cancerous tissue must all necessarily affect circulation.

Our patient can withstand the changes of circulation only if his initial condition, before drug therapy, before anesthesia, before operation is adequate. He can recover from therapy or from operation, only if his circulation becomes adequate.

Study of the circulation, using the simple tools of a stethoscope, a sphygmomanometer, a watch and your five senses can, therefore, not only be extremely useful in diagnosis, but invaluable in following the trend of your patient's condition under your therapy, or under your operation, and can even assist in prognosis.

We might go further and suggest that a careful study of circulation in all cases might prevent deaths in patients who, by all other tests, appear to be progressing well. We were reminded of this possibility a few months ago, while attending a hospital staff meeting. One of the subjects for discussion was diabetes. Three patients were mentioned, two of whom died suddenly. All three, including those who died, had attained the admirable condition, the acme of perfection in treatment, normal blood sugar, and no sugar in the urine. Nevertheless, two of them were dead. Why do diabetic patients die? In the one case, the patient had been so well after a few days of treatment that he was allowed to sit up in bed. He apparently died from acute embolus, which might well have arisen from an inadequate circulation. The second quite probably died from circulatory failure. Diabetic patients do not die because their blood sugar is high, or their urinary sugar is high. They die because, as part of the picture of improper sugar metabolism, poisonous chemicals are produced, for beta-butyric acid and acetone are both narcotics. We know that these compounds affect circulation seriously, and that the impairment of circulation might still be present, even when biochemical tests for them are negative. Any physical load suddenly placed upon such a defective circulation can lead to acute collapse and death. The same mechanism can occur in other diseases for we only die when both circulation and respiration fail.

If we know as much as possible about the circulation of each of our patients we are more prepared to combat serious collapse. Proper rest in the correct position, or inhalation of oxygen, or, in some cases, adequate nutrition or therapy, might maintain life sufficiently long to allow remedy of the condition for which the patient came under our care.

BIBLIOGRAPHY

1. Williamson, G. Scott and Pearse, H. Innes: Biologists in Search of Material, page 19. Faber & Faber, Ltd., London.
2. Furst, T. and Soetbeer, F.: Experimentelle Untersuchungen uber die Beziehungen zwischen Fullung und Druck in der Aorta, Deutsches Arch. f. klin. Med. 90: 190-208, 1907.
3. Cramp'on, C. Ward: The Gravity Resisting Ability of the Circulation; Its Measurement and Significance (Blood Ptosis), Am. J. Med. Science 160: 721. 1920.
4. Davis, P. L. and Shumway-Davis, M.: Orthostatic Hypotension, J. A. M. A. 108: 1247, 1937.
5. Korns, H. M. and Randall, W. L.: Orthostatic Hypotension Treated with Benzedrine, Am. Heart J. 13: 114, 1937.

POINT AND COUNTERPOINT

Clap also Crap

When steamed up mentally the editor of this sheet, almost always, reverts to colloquial United States. In the August number, page 144, of "Delaware State Medical Journal" (a publication which we read from cover to cover; even though most of it is Greek to us) we read an article "Has Gonorrhea Been Driven Underground?" Let us hope that it has been driven underground but, until such time as the sources of infection have been either eliminated, or at least plugged, it will continue to curse humanity. The writer never had it and still prefers a "cold in the head."

We agree with the authors of the article quoted (which you should read) that, in the nation-wide effort to squelch syphilis, too little attention has been paid to the menace of gonorrhea. We are cognizant, as well as appreciative, of the efforts of the Division of Communicable Disease Control of Delaware State Board of Health to stamp out venereal disease of whatever character. However we certainly, in most strong words, take exception to the implication that the pharmacists of Delaware are in any measureable degree indulging in the treatment of venereal diseases. The No. 2 health profession in the State of Delaware is just as much concerned in this problem as is that of the M.D., and we resent unwarrented slams. The writer, in 51 years of professional practice, has come to know intimately the pharmacists of Delaware and has found them to be (like Ivory Soap) 99-44/100% pure.

The writer is, at this time, an inspector for the Delaware State Board of Pharmacy and will be more than eager to report to the Pharmacy Board the names of any pharmacists who are counter-prescribing for venereal diseases.

For the information of Doctor Chapman and Doctor Cameron we might state that sulpha drugs may only be dispensed upon physicians prescriptions Not Renewable.

Editorial, *Del. Pharm. Soc.*, September, 1943

Dear Dr. Bird:

Thank you for calling my attention to the editorial in the September Bulletin of the Delaware Pharmaceutical Society.

Since Dr. Chapman is no longer with the State Board of Health—having gone the way of most of the Public Health Service officers assigned to Delaware—the blanket exception made in the editorial prompts me to take my pen in hand and describe the events leading up to the posing of the question which appeared as the title of the article written by Drs. Chapman and Cameron.

Drs. Chapman and Cameron began a study several weeks ago to determine the incidence of gonorrhea among patients with syphilis. It is generally stated that gonorrhea is ten times more prevalent than syphilis, yet the State Board of Health clinics enroll ten patients with syphilis to one with gonorrhea. The study was incomplete at the time the material for the Journal was due, but enough information had been assembled to cause an investigative person to ask questions. Hence, the question "Has gonorrhea been driven underground?" was purely incidental to the study.

A word about the investigation, which is now complete, might be of interest. Since the majority of our male patients are Negroes, Chapman and Cameron interviewed, without selection, the first 404 Negro male patients being treated for syphilis with a view of determining how many of these gave a history of having had gonorrhea. A positive history was given by 390!

Of the 390, they found that 126 had urethral discharges, and smears were taken from these; 74 were found positive; 52 were diagnosed temporarily as non-specific urethritis by smear and were then followed up by culture. The history of the patients, varying from a current infection to 6 years, and from 1 to 5 attacks, prompted them to inquire about treatment, and the following information was obtained:

Treated by a physician, public or hospital clinic	170
Received the medicine from a druggist,	183
Had no treatment	37
Total	390

Interesting, isn't it?

Drs. Chapman and Cameron had no reason to take offense at the editorial. They did however, make the mild observation that the writer might possibly have encompassed too much territory when he stated that in his experience he had found the pharmacists to be —like Ivory Soap—99-44/100% pure, but that if this statement be true, then an injustice had been done and they would be quite content to relegate the unethical pharmacists to the remaining 56/100%!

Sincerely,

EDWIN CAMERON, *M.D.*
Executive Secretary

War and Tuberculosis

In some of the European countries pneumonia is a chief cause of death. If it can be treated early with one of the sulfa drugs the mortality can be reduced probably by 50% to 75%.

The second major cause of death is tuberculosis and all age groups of the population will be affected. Under the conditions of war and military occupation, the prevalence of the disease is undoubtedly increasing, and it will be one of the principal problems of the reconstruction period, as it was after the last war. This time we should be better equipped to fight tuberculosis, because we have learned that it is a community problem and can be better dealt with through a specialized program. In combating tuberculosis, the first problem will be to locate the cases. Persons with open lesions should be isolated and taught how to care for themselves so as to be of the least possible danger to those with whom they must come in contact. In locating cases, traveling diagnostic units, including x-ray equipment, will be essential. Locating the case is only the initial step; the big problem is to reduce contagion by removal, by home isolation, and by artificial pneumothorax. The public health nurse is an essential member of the public health personnel in the fight against tuberculosis. M. E. Tennant, R. N., Amer. Jour. Nursing, June, 1943.

Editorial

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THE ANNUAL SESSION

The 154th Annual Session of the Medical Society of Delaware was held in Wilmington, October 12-13th, under the Presidency of Dr. Lawrence J. Jones. At the House of Delegates meeting 22 of the 31 attended. Routine business was disposed of promptly, and the House then authorized a Special Committee on Postwar Problems, to consist of the Council (5) and two others; and adopted a resolution against the Wagner Bill (U.S.S. 1161), to be sent to our representatives in Congress, and to others.

The scientific program was one of the best in recent years and was remarkable for the fact that even under war conditions, every essayist on the program was present; and by the same token, an attendance larger than was anticipated was also present. The program featured military and industrial medicine and surgery, and merited the excellent publicity it received in the local press, whose interest was well expressed in the following editorial from the Wilmington *Journal-Every Evening* of October 11th.

WAR AND MEDICINE

This year's annual meeting of the Medical Society of Delaware, which will be held in the Academy of Medicine, Wilmington, tomorrow and Wednesday, takes on new importance. It will deal largely with the influence of the war upon the obligations, responsibilities and work of the medical profession, as well as related subjects.

The members in attendance will be largely the guardians of the public health on the home front. About one-third of the state's physicians are serving in the armed forces.

Judging from the nature of the program an effort has been made to place emphasis upon industrial and war medical and surgical developments. Various phases of these subjects will be discussed by recognized authorities who have prepared enlightening papers to be read before the meetings.

Gatherings such as this are of interest to the public as well as the medical profession. Because the doctors are constant students in order to keep pace with developments in their calling they take advantage of new things through which the health of the public will benefit. Constructive enlightenment results from meetings at which there is opportunity to study the progressive trends in the field of medicine and surgery.

At the election, Dr. Richard C. Beebe, of Lewes, was elected President for 1944, and the session will be held in Sussex County at a time and place to be determined later.

The annual meeting of the Women's Auxiliary was held on October 13th. Regular business was attended to, and the present officers were re-elected for a two-year term, thus, Mrs. Ervin L. Stambaugh, of Lewes, continues as President.

Due to the war, the social functions were limited to a buffet supper and a buffet luncheon, which were well attended.

War or no war, our 1943 Session was a credit to our ancient and honorable Society.

MISCELLANEOUS

New Concepts of Poliomyelitis Not Correct

Electrical tests of the muscles of 49 patients with infantile paralysis lead Joseph Moldaver, M. D., of the Department of Neurology, Columbia University College of Physicians and Surgeons, and the Neurological Institute of New York to declare in *The Journal of the American Medical Association* for September 11 that two of the three new concepts of the disease as described by the Australian nurse Elizabeth Kenny are incorrect. It should be borne in mind that the investigations by Dr. Moldaver were concerned only with Sister Kenny's concepts of the disease and did not in any way involve the Kenny treatment or its results.

"Recently," Dr. Moldaver says, "a new concept of infantile paralysis has been described by Kenny and has been approved by some physicians. This new concept is fundamentally different from the one accepted for more than a century. The phenomena described in this concept are (1) muscle 'spasm' [contraction], (2) 'mental alienation' and (3) 'incoordination.' Only recently the existence of some true paralysis has been accepted by the proponents of this concept. Muscle 'spasm' is regarded as the most damaging symptom in poliomyelitis and is said to lead to degeneration if not treated. The muscles opposed to those in 'spasm' become 'alienated,' divorced or erased from the patient's mind. The muscles which are in 'spasm' are the damaged ones. . . The 'alienated' muscles are non-functioning, not because they are paralyzed by the lesions [injuries] of the anterior horn cells [certain nerve cells in the spine], but rather because for some unknown reason they are unable to receive impulses. The dissociation of the muscle from the brain is regarded as due to some physiologic block. 'Alienated' muscles may become permanently nonfunctioning if not treated. In summary, according to this concept, infantile paralysis is a 'spastic' not a flaccid [weak, lax and soft] paralysis; the muscles affected by this disease are those in 'spasm.' The antagonist muscles are 'mentally alienated,' and some muscles show incoordination. The danger of paralysis lies mainly in allowing 'spasms' to continue.

"In view of this concept, investigations were conducted in order to find whether or not these newly described symptoms actually exist and if they were actually overlooked for more than a century. . . ."

Forty-nine patients were tested, nerve and muscle degeneration was explored by what is known as chronaxia measurements (time required for a muscle to react to electrical stimulation) and "spasm" was studied in some of these patients mostly by electromyograms which chart the electrical impulses generated by muscles. Muscles which might be considered to be "alienated" as well as muscles in "spasm" were primarily explored by chronaxia measurements, muscles regarded as normal clinically were also studied.

Dr. Moldaver says that chronaxia measurements detect slight nerve and muscle degeneration. "In all 'aleniated' muscles," he declares, "there was evidence of neuromuscular degeneration. In most of the 'alienated' muscles, the nerves and muscles were in a state of partial neuromuscular degeneration. In a partial neuromuscular degeneration, some of the muscle and nerve fibres are damaged, while other fibres of the same muscle escape degeneration. This part of the muscle is therefore still able to respond to stimulation of its motor center. . . ."

He declares that some of the muscles considered to be "alienated," according to the definition by Kenny, were found in total neuromuscular degeneration.

As a result of his study he concludes that 1 "Muscle spasm" is not "the most damaging symptom" and does not lead to nerve and muscle degeneration. "Spasm," he says, is not an entity but a complex phenomenon. It is the result of a combination of the normal stretch reflex (the mechanism that keeps a muscle at its normal tension), irritation of the membrane lining of the nerves where they leave the spine, increase of the normal tonus in healthy and strong muscles or muscular fibers opposed to weak or paralyzed muscles, injuries to certain portions of the nervous system.

2. In "alienated muscles" there is neither a functional paralysis nor a "physiologic block." That these muscles have partially or completely lost their power to contract is due

to the fact that the anterior horn cells are damaged or destroyed. In the paralyzed muscles considered to be "alienated," there is always some degree of neuromuscular degeneration.

3. "Incoordination" is caused, if at all, by the inability of partially or totally denervated muscles to respond to otherwise normal nerve impulses.

Sister Kenny Criticizes

New York, Oct. 9(*AP*).—Sister Elizabeth Kenny, Australian nurse who devised a method of treating infantile paralysis, was quoted by the Herald-Tribune today as saying physicians in the United States had administered the treatment in "shoddy fashion."

"It takes at least two years to learn my technique," she said in the interview, "... in Australia it is a two-year course and here in the United States doctors look into my concepts for as little as one week and then consider they are experts."

Sister Kenny was quoted by the Herald-Tribune as saying that during her three and a half years in the United States "no one has completely learned my technique" and "that has been a great sadness to me."

Wilm. *Journal-Every Evening,* Oct. 9, 1943

Laboratory Technicians

The meetings of the Delaware State Association of Clinical Laboratory Technicians, for November and December are as follows:

November 16, Memorial hospital, 8:00 p. m. Speaker: Dr. A. E. Rakoff, Endocriologist of the Jefferson Hospital, Philadelphia. Subject: "Hormone Assays and their Diagnostic Value."

December 7, Delaware hospital, 8:00 p. m. Speaker: Dr. J. C. Kakavas. Subject: "Penicillin—Its Production and Use."

Physicians and nurses will be welcomed.

BOOK REVIEWS

Lectures on Peace and War Orthopedic Surgery. Edited by James E. M. Thompson, M. D. Pp. 322, with 350 illustrations. Cloth. Price, $4.00. Ann Arbor: Edwards Brothers, Incorporated, 1943.

This volume represents the transactions of the Instructional Section of the American Academy of Orthopedic Surgeons at their meeting in Chicago, January, 1943. The 65 papers, covering a very wide scope of treatment orthopedics, are by men of authority in their respective subjects. The book is too advanced for students, but is an excellent reference work for general surgeons and orthopedists.

While the size of the page, 8½x11 inches, makes its housing in the average private library a bit awkward, the format is pleasing, and the double columns of photolithographed text are easily read. The illustrations are quite good. The big weakness of the book is—no index.

A Synopsis of Clinical Syphilis. By James Kirby Howles, M. D., Professor of Dermatology and Syphilology, Louisiana State University. Pp. 671, with 123 illustrations. Cloth. Price, $6.00. St. Louis: C. V. Mosby Company, 1943.

The material on this subject that must be compressed within the confines of a small book is too vast to present an adequate consideration without slighting certain topics, but by and large, the doctor has done a good job.

This little book covers the subject well. The descriptive chapters, from the primaries through to the neuro phase, are well written. All phases of the disease are briefly considered, with an up-to-date resume of the treatment. The book contains many interesting and instructive photographs of the different lesions of syphilis, making the text more interesting and illuminating.

Pennsylvania Formulary (P.F.). Prepared by the Joint Committee. Pp. 108. Paper. Harrisburg: The Joint Committee, 1943.

This brochure is a new formulary aimed at providing an acceptable list of preparations that can be stocked at a minimum capital outlay on the part of the pharmacist. Its secondary aim is to discourage self-medication. Prepared by the Joint Committee of the Pennsylvania Pharmacists Association and of the Medical Society of the State of Pennsylvania, the booklet is very well adapted to its purposes, and contains few typographical errors; "Elixer," however, should be corrected

to "Elixir." There are adequate alphabetical and therapeutic indices.

Internal Medicine in General Practice. By Robert Pratt McCombs, Lieutenant, M. C., U. S. N. R., recently instructor in Internal Medicine for the Statewide Postgraduate Program of the Tennessee State Medical Association. Pp. 694, with 114 illustrations. Cloth. Price, $7.00. Philadelphia: W. B. Saunders Company, 1943.

The author states that his purpose in writing the text was to supply the need of a concise volume in which the practical clinical aspects of internal medicine are outlined for general practitioners and students.

This has been admirably accomplished by also including in the text the significance of the recent advances in the basic sciences and the latest methods of diagnosis, correlating laboratory technique with the clinical symtoms of disease.

The title of the book has been well chosen, for it fully covers the field of diagnosis and treatment for the general practitioner.

It is a book we can heartily recommend.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC.

Required by the Act of Congress of August 24, 1912, and March 3, 1933, of The Delaware State Medical Journal, Published monthly at Wilmington, Delaware, for October 1st, 1943.

STATE OF DELAWARE
COUNTY OF NEW CASTLE } SS.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared M. A. Tarumianz, M. D., who, having been duly sworn according to law, deposes and says that he is the Business Manager of the Delaware State Medical Journal and that the following is to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Name of—	Post Office Address
Publisher, Medical Society of Delaware,	Wilmington, Delaware.
Editor, W. Edwin Bird, M. D.,	618 Citizens Bank Bldg., Wilmington, Del.
Associate Editor, W. O. LaMotte, M. D.,	Medical Arts Bldg., Wilmington, Del.
Business Manager, M. A. Tarumianz, M. D.,	Farnhurst, Delaware.

2. That the owner is: (if owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address as well as those of each individual member, must be given.)

The Medical Society of Delaware

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4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is ————. (This information is required from daily publications only.)

M. A. TARUMIANZ, M. D.
(Signature of Business Manager)

Sworn to and subscribed before me this 30th day of September, 1943.

(SEAL) MARY S. RHODES
Notary Public

(My commission expires April 1, 1945)